

UNIROYAL CHEMICAL
DIVISION OF UNIROYAL, INC.
PAINESVILLE, OHIO, PLANT

NIOSH VISIT MARCH 5, 1974

Kenneth Coss - President, United Rubber Workers Local 553
J. Robert Douglas - Industrial Relations Manager
J. Dexter Forbes, MD. - Corporate Medical Director
Arthur Fritinger - Maintenance and Construction Engineer
Walter J. Harris, PHD - Corporate Industrial Toxicologist
Robert Holman - Production Superintendent
Chang Ho Kim - Technical Superintendent
Benton R. Leach - Factory Manager
Don Rhinehart - Sr. Process Methods Engineer
Richard Shearer - Employee Relations Supervisor
C. B. Westerhoff - Chief Chemist

Louis S. Belicaty URU-Int. Union

Kenneth Kronoveter Ind. Hyg. NIOSH

William Stringer Statistician NIOSH

Joseph Mallov, M.D. medical officer NIOSH

A. Scott Grivas, M.D. Physician

(CENTER FOR DISEASE CONTROL)

ATLANTA, GA.

Dorothy Benning Chief Asst. - Ohio Dept. Health

Jay-Jones, Ind Hyg, NIOSH

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

March 5, 1974
cc: DED - Oxford

TO: J. E. Crim
Naugatuck

FROM: B. R. Leach
Painesville

SUBJECT: URW Activity Associated with NIOSH Visit

Louis Beliczky spent all morning, today, at the Painesville plant. He and Ken Coss sat in on the preliminary presentations made to the NIOSH investigating team. When this meeting was completed he said he would like to make a tour of the plant. I accompanied Lou Beliczky and Ken Coss on a tour of all of our production facilities - Area I and Area IV.

Beliczky asked me questions both in the NIOSH presentations and during our plant tour. I feel they were all answered satisfactorily and that we left the impression that we did not feel that we had anything to hide.

Beliczky and Coss had lunch then with Dr. Forbes and Dr. Harris and then returned to Akron.

B. R. Leach
B. R. Leach

BRL:nak

INTERCOMPANY CORRESPONDENCE

UNIRO003345

Ins 3-18-74
status?UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.TO: I. Mankowich
Naugatuck

March 4, 1974

FROM: C. H. Kim

cc: (BRL) WMI REH JRD

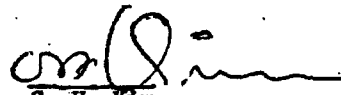
SUBJECT: B. F. Goodrich Chemical's Hydraulic Reactor Cleaning System

With the mounting scientific evidence indicating that vinyl chloride causes cancer in workers exposed to it, we would like to reinvestigate the BFG's hydraulic reactor cleaning system for the purpose of minimizing VCM exposure to our employees.

It is hoped that revisions planned for the THF solvent cleaning system will eventually replace present manual cleaning operation. However, as you know, the S.D. plant suspension resin reactors require flushing and high pressure jetting every batch to control "fish eyes" and particle size control. We hope that BFG's system will replace this operation thus completely eliminating the need for opening of polys for the purpose of cleaning.

I have been in contact with Mr. Arthur L. Hastings of B.F. Goodrich Chemical Company to reopen the case, which we have undertaken in 1970 and 1971. Mr. Hastings informs me that the Secrecy Agreement signed in September, 1970 has expired.

Your assistance is requested to secure a Secrecy Agreement with B.F. Goodrich Chemical as soon as possible to begin our investigation of its feasibility and applicability to our process as well as economics.


C. H. Kim

CHK:hew

Attachments

INTERCOMPANY CORRESPONDENCE

UNIROY003346

MEMORANDUM

Xerox Copies to

BRL ✓

CHK

REH

JRD

DATE: MARCH 1, 1974

SUBJECT: PHONE CALL WITH NIOSH, ROCKVILLE, MARYLAND 3-1-74

TO: J. E. ERTEL

cc: E. R. Bardgett
J. M. Daniel
A. J. Dorko
J. C. Palinsky

(Dini 3/1/74)

On Thursday, 2-28-74, the writer called Mr. Vernon Rose of NIOSH in the Washington area in an attempt to determine what medical screening, protocol, and medical testing may result from the task force committee; in addition to determine what work practice standards may be formulated for the industry.

Mr. Rose, being unable to talk with me on Thursday, returned my call on Friday morning. I discussed our situation, that we are not members of the MCA, that we lack the recourse to get information directly from MCA as can most of the rest of the industry. I requested of Mr. Rose what information he may be in the position to give me at this time.

NIOSH will meet on Saturday, March 2, with certain members of the medical profession that have been called together to set up medical protocol, testing and screening. He feels that after they discuss the medical aspects there will be a lapse of at least a week while these members digest what is discussed before they re-meet to formulate medical plans. They will, as part of this medical screening and protocol group, probably have a set of medical tests suggested as a basis for initial screening and reference for further and continued testing.

Mr. Rose informs me that just this week he has received from various members of his task force, drafts of suggested work practices. He is formulating a proposal from these drafts as a recommendation for OSHA. This he expects may be presented by the middle of next week. He is not sure whether the Department of Labor will or will not accept the draft as an immediate and temporary standard or whether they will modify the draft and propose this draft in the Federal Register. This would probably then involve a 30 day period for the public rebuttal, after which OSHA could hold another public hearing. In all, it appears that nothing factual or formal will be available for approximately 2 months time.

UNIRO003347

He did suggest that as in interim measure that we continue our program of monitoring for VCM and continued good work practices to reduce exposure to VCM wherever possible. Mr. Rose recommends that the purchase of an OVA unit is a good start for equipment to monitor VCM concentrations. He suggests that we contact our plant physician to enlist his aid to find a medical liver expert.

~~I requested of Mr. Rose that he send to our Painesville address,~~
future information that may be passed on by or through NIOSH to the MCA since we are not currently members and would be unable to obtain this information except by the generosity of other processors in our local area. His secretary recorded us on their mailing list.


N. E. SEYLER

NES:sp

TELEPHONE CALL REPORT

TO: A. C. Werner

DATE: March 1, 1974

BY: C. H. Kim

SUBJECT: Frequency of S. D. Poly Cleaning

In view of high VCM exposure measurement in the S.D. plant processing area, a call was made to A.C. Werner to obtain Marvinol R&D's approval for reduction of frequency of poly opening. It was agreed that the S.D. plant polys will be opened for jetting and cleaning purposes every other batch instead of the current practice of jetting after every batch.

No permanent gel specification change is contemplated at this time; however, special approval will be obtained for those lots having high gels so that the Plant will not be penalized unduly.

The changes in poly cleaning procedure will become effective immediately. On Monday, March 4, 1974, we will attempt to make new measurement of VCM concentration in the S.D. processing area to measure the effectiveness in this procedural change.


C. H. Kim

CHK:hew

cc: BRL REH CJU GMB CBW
RAP JIS MCJ WMI
ACWerner - Naug.

UNIRO003349

VINYL CHLORIDE PROBLEM - SUMMARY TO DATE

1. On January 23, 1974, B. F. Goodrich made a public announcement that they had informed health authorities in the State of Kentucky and the Federal Government that three of their employees had died of a rare form of liver cancer. They were concerned that these deaths might relate to the fact that these men had worked in the Louisville PVC plant for many years. Additional search of medical records indicated that two other B. F. Goodrich Louisville employees had died from the same cause, Angiosarcoma of the liver. (Plus one at Goodyear, Niagara Falls, N.Y.; one at Union Carbide, S. Charlestown, W. Va.; and one at ICI in England to date.)
2. The Kentucky Department of Labor and representatives of the Federal Agencies OSHA and NIOSH began an immediate investigation. NIOSH issued, On February 1, 1974, a set of recommended precautionary procedures for use in PVC plants. These procedures recommended protective measures for workers against both VCM and PVC dust.
3. Within the last month, representatives of both the Painesville plant and Corporate Health and Safety have participated in numerous conferences on this subject. We have issued recommendations to everyone in Marvinol® manufacturing and all maintenance men associated with these operations for personal protection against both VCM and PVC exposure. Some equipment and procedural changes have been made to reduce exposure. We have borrowed an instrument for monitoring VCM levels in the air in our buildings. Instruments are on order for our continued use. We are studying additional process and procedural changes to be made as soon as possible.
4. A review of the medical histories of our employees, both living and dead and both present employees and former employees, has not revealed any occurrence of Angiosarcoma.
5. The National Institute for Occupational Safety and Health (NIOSH) will visit a number of PVC manufacturing facilities to study both the operation of the facility and the medical history of the employees with the facility. The object is to determine whether the problem which has surfaced at the Goodrich, Louisville plant is unique to that plant or a general problem in PVC facilities. A team from NIOSH will visit the Painesville plant on Tuesday, March 5. We will cooperate fully with them during their visit.
6. Various industrial groups are pooling their operating experience in order to set up minimum acceptable operating procedures for the PVC industry. This information will be available so that when NIOSH completes their investigation as to the probable factors related to the B. F. Goodrich experience, Recommendations can be made to be applied uniformly to the PVC industry.
7. At this point in time we cannot say, with certainty, the degree of hazard which VC and PVC represent. We want all of our employees to be aware of this problem and to help safeguard them against unnecessary exposure to these materials. It seems unlikely that products made from PVC offer any hazard even if there is a hazard during the manufacture of PVC resins such as Marvinol®.

VINYL CHLORIDE PROBLEM - SUMMARY TO DATE

1. On January 23, 1974, B. F. Goodrich made a public announcement that they had informed health authorities in the State of Kentucky and the Federal Government that three of their employees had died of a rare form of liver cancer. They were concerned that these deaths might relate to the fact that these men had worked in the Louisville PVC plant for many years. Additional search of medical records indicated that two other B. F. Goodrich Louisville employees had died from the same cause, Angiosarcoma of the liver. (Plus one at Goodyear, Niagara Falls, N.Y.; one at Union Carbide, S. Charlestown, W. Va.; and one at ICI in England to date.)
2. The Kentucky Department of Labor and representatives of the Federal Agencies OSHA and NIOSH began an immediate investigation. NIOSH issued, On February 1, 1974, a set of recommended precautionary procedures for use in PVC plants. These procedures recommended protective measures for workers against both VCM and PVC dust.
3. Within the last month, representatives of both the Painesville plant and Corporate Health and Safety have participated in numerous conferences on this subject. We have issued recommendations to everyone in Marvinol® manufacturing and all maintenance men associated with these operations for personal protection against both VCM and PVC exposure. Some equipment and procedural changes have been made to reduce exposure. We have borrowed an instrument for monitoring VCM levels in the air in our buildings. Instruments are on order for our continued use. We are studying additional process and procedural changes to be made as soon as possible.
4. A review of the medical histories of our employees, both living and dead and both present employees and former employees, has not revealed any occurrence of Angiosarcoma.
5. The National Institute for Occupational Safety and Health (NIOSH) will visit a number of PVC manufacturing facilities to study both the operation of the facility and the medical history of the employees with the facility. The object is to determine whether the problem which has surfaced at the Goodrich, Louisville plant is unique to that plant or a general problem in PVC facilities. A team from NIOSH will visit the Painesville plant on Tuesday, March 5. We will cooperate fully with them during their visit.
6. Various industrial groups are pooling their operating experience in order to set up minimum acceptable operating procedures for the PVC industry. This information will be available so that when NIOSH completes their investigation as to the probable factors related to the B. F. Goodrich experience, recommendations can be made to be applied uniformly to the PVC industry.
7. At this point in time we cannot say, with certainty, the degree of hazard which VC and PVC represent. We want all of our employees to be aware of this problem and to help safeguard them against unnecessary exposure to these materials. It seems unlikely that products made from PVC offer any hazard even if there is a hazard during the manufacture of PVC resins such as Marvinol®.

Plant shut up
VC mfg - stopped
1947 1962
PVC

UNIROYAL CHEMICAL
 Division of UNIROYAL, Inc.

February 26, 1974

cc: GAA - Naug.
 JEC - Naug..
 DED - Naug.

TO: MEMO
 FROM: B. R. Leach
 SUBJECT: NIOSH Visit

I received a telephone call on Monday, February 25, 1974 from Mr. Phil Bierbaum of NIOSH. NIOSH plans to visit Uniroyal, General Tire and Avon Lake PVC plants during the first week of March for a preliminary survey. We chose Tuesday, March 5 for this plant. They will plan to arrive between 8:30 and 9:00 a.m. There will be two MD's, two Industrial Hygienists and a Statistician. The planned sequence of events will be:

1. Discussion of the plan for the day.
2. A walk-through of the PVC manufacturing facility.
3. Split up for individual talks as follows:
 - a. The MD's for discussion with Plant Medical Department.
 - b. Industrial Hygienist with Process people.
 - c. Statistician to Personnel for work record review.

It will be desirable to have our Corporate Medical Department present so I have arranged that both Dr. Forbes, Corporate Medical Director, and Dr. Harris, Corporate Safety and Plant Protection, will be here. Dr. Fletcher had already planned to be here from 8:00-10:00 a.m. for his regular visit but we may want him here for a longer period that day.

As indicated from our information on the Pottstown visit, the following information is needed for this visit:

- ~~1.~~ List of raw materials. This should include both a listing of all chemicals that have been used in this operation as well as a quantitative estimate of the chemicals presently being used.
- ~~2.~~ A process flow sheet.
- ~~3.~~ Access to medical records.
- ~~4.~~ Brief summary of how operations have changed during the plant's history.
- ~~5.~~ Any results from in-plant air sampling.
- ~~6.~~ Pictures showing steps of the process.

In addition to the visit of Tuesday, March 5, there will probably be one man who will visit on Friday, March 8, for a more detailed discussion of process operations.

BRL:nak
 cc: WMI REH CHK JRD

B. R. Leach

On March 1 rec'd phone call that Dorothy Benning, Ohio Dept of Health will accompany the NIOSH group on Tuesday.

INTERCOMPANY CORRESPONDENCE

UNIROY003352

TELEPHONE CALL REPORT

TO: Dr. R. S. Brookman
Technical Director
Firestone Chemical Plant
Pottstown, Pennsylvania

DATE: February 26, 1974

cc: BRI WMI REH RJD
MCJ GEB CEW WFB

DATE: February 25, 1974

BY: C. H. Kim

SUBJECT: NIOSH Visit

A telephone call was made as a follow-up to my memo of February 22, 1974 regarding NIOSH's visit to Firestone Chemical Plant in Pottstown, Pa.

On February 21, 1974, NIOSH's inspection team consisting of three medical doctors (Dr. Falk, Dr. Mallov, and one name unknown), one epidemiologist (Mr. Stringer), and two industrial hygienists (Mr. James Jones and Mr. Phil Bierbaum) have visited the Firestone plant. One of the industrial hygienists stayed an additional day to conduct an in-depth process study. According to Dr. Brookman, NIOSH intends to visit approximately 15 PVC manufacturing plants that have a manufacturing history of more than 15 years. From the 15 plants, NIOSH will select 2-3 plants for in-depth study. It seems to Dr. Brookman that since no angiosarcoma is found in other PVC manufacturing sites other than B.F. Goodrich's Louisville, Ky. plant, NIOSH is looking for the differences that may exist between the Goodrich site and other PVC manufacturing operations to verify whether angiosarcoma is indeed caused by VCM, or related to a particular operation.

NIOSH personnel were very cordial and made no demands whatsoever, and left any information on a voluntary basis.

After a quick walk through of the plant by the NIOSH team, each professional team started to conduct their own investigation with Firestone personnel. NIOSH's medical team spent the whole day with Plant and Corporate medical staff to review employees' medical records, especially records on deceased personnel. It was Dr. Brookman's understanding that NIOSH's medical team will review the death certificate and possibly the autopsy with the State Health Department of each case. When a suspicious death is found, they intend to conduct an investigation with hospital and employee's personal physician. The NIOSH epidemiologist reviewed personnel work and VCM exposure records with Firestone's Industrial Relations Department. The two industrial hygienists spent the entire visiting time with plant personnel to review processes and make VCM analyses of the plant environment.

Dr. Brookman informs me that based on their questions, NIOSH is more interested in what the past work practices and VCM exposure have been that could be related to employees health records. They were very much concerned with air borne PVC dust for reason of VCM carried by dust and ingestion of VCM with inhalation of PVC dust.

UNIRO003353

February 26, 1974

NIOSH has borrowed Firestone's Century hydro-carbon analyzer unit and made extensive spot analyses including:

1. Reactor during cleaning operation - they have detected very high concentration when the reactor was opened for cleaning and just prior to venting (exact concentration not known). During the cleaning operation, air sample exhibited less than 60 PPM of VCM, mostly 30-40 PPM range.
2. Warehouse Area - they have detected reasonably high concentration of VCM between bags as well as the warehouse in general. Since they have gas driven lift trucks, Dr. Brookman expects that Century unit will detect high concentration of hydro-carbon concentration as the unit is not discriminative.
3. Hydro-Carbon (other than VCM but used as additives to their processes) Storage Warehouse Area - NIOSH detected total hydro-carbon concentration of 150 PPM, but Dr. Brookman was sure that it was not VCM but caused by other hydro-carbons.

NIOSH personnel did ask permission to take photographs of the operation; however, instead, Firestone showed slides that were available for their personnel training. NIOSH accepted the slides rather than taking their own photographs. Firestone is in the process of editing those slides for submission to NIOSH. A complete list of chemicals were given to NIOSH personnel also.

Dr. Brookman further informs me that NIOSH's industrial hygienists asked many many questions but the answers were strictly voluntary at Firestone's discretion and not forced.

I have informed Dr. Brookman that I would reciprocate his favor if and when NIOSH makes a visit to our plant.


C. H. Kim

CHK:hew

CC: JAD
WMI
CAK

PRIVATE

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

February 22, 1974

**Report of Telephone Conversation
Dr. Dexter Forbes - Oxford**

Dr. Forbes called today to relay the latest information regarding the vinyl chloride problem. He wanted to acquaint me with these facts and see what we might do to get additional background information on those former employees who are deceased.

1. Tabershaw-Cooper have tabulated data on 131 deaths so far (not including the B. F. Goodrich five). At least two of the cancer deaths are from the Painesville plant. These are Herbert Nelson, died 1969 and Sten Gergley, died December 1972. Dr. Forbes would like us to verify the work history of these men such as, what job did they do here? How long did they work here? What exposure did they have? What other employment history other than Uniroyal can we determine?

*Dr. Fletcher can
help.*

Dr. Forbes asked me to consult with Dr. Fletcher as to what medical data might be available on these and the others that we might be aware of who are now deceased such as, did death occur in a hospital? What hospital? Autopsy performed? Anything noted regarding liver, kidney, or lungs? Any record of laboratory work during last illness?

2. Dr. Forbes asked what we do in our annual physicals of our employees. It is probable that one result of this VC problem is that a good annual physical examination will be required of all employees. This would include, medical history, occupation history, lung function test, xrays of chest, hands and abdomen, blood count, platelet count, SMA-12, and urinalysis. The cost of such an examination is likely to be in the neighborhood of \$200 so, if we are talking about 200 people, this is \$40,000 annually. Even \$40,000 is optimistic since, if any sort of problem is found there will be additional work required.

*Dr. Fletcher will be
out of town all next
week beginning Monday
afternoon.*

Dr. Forbes asked me to determine when it would be convenient for him to visit Painesville for discussion with Dr. Fletcher regarding some more of the medical details which he has learned. I told Dr. Forbes I would determine this and I would like to have it as soon as possible since I want to review our in-plant plans with Dr. Harris and himself.

4. Dr. Forbes has a meeting this afternoon from 2:00 to 4:00 p.m. I promised that either Dr. Fletcher or myself would call him after 4:00 to see if anything can be arranged for next week.

BRL:nak



INTERCOMPANY CORRESPONDENCE

UNIROYAL003355

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

February 22, 1974

cc: GAA - Naug.

JEC - Naug.

TO: D. E. Dudrow
Oxford

FROM: B. R. Leach
Painesville

SUBJECT: NIOSH

According to a conversation I had on Tuesday, February 19 with the Cincinnati office of NIOSH, the Painesville plant is high on the priority list of PVC facilities to be visited. I was told that we would be informed well ahead of any NIOSH visit if we were selected. The attached memo from C. H. Kim indicates the kind of information that is likely to be required if we are visited. We are preparing this now. If some sort of higher level approval is required for any of this information, please begin to get it now since I rate the probability of a NIOSH visit to be high.


B. R. Leach

BRL:hak
cc: JRD
Att:

INTERCOMPANY CORRESPONDENCE

UNIRO003356

1. No vinylchloride monomer has been manufactured at the Uniroyal Painesville facility since 1954.
2. No vinylchloride resin has been manufactured at the Uniroyal Painesville facility since 1976.
3. The Uniroyal Painesville facility has had a viable health monitoring and surveillance program in place since 1974, including a hands-on annual physical examination, comprehensive blood analysis, hemoccult blood tests, pulmonary function and chest X-ray.
4. The Painesville facility has had on-line area monitoring systems since 1974.
5. In 1974 a personnel monitoring program was initiated including employee notification of monitoring results.
6. An epidemiologic study by the University of North Carolina in 1978 revealed the cohort of the Painesville Uniroyal facility to have a better health profile than the general population.
7. When the temporary standard for vinylchloride was issued (1974) all employees and retirees were notified of the concerns regarding vinylchloride exposure.
8. The Uniroyal Painesville facility is in full compliance with all of the requirements of the federal standards and regulations regarding employee exposure to hazardous materials, including the annual requirement for employee orientation and training.
9. The Uniroyal Painesville facility maintains a comprehensive in-house auditing procedure to insure that all programs relative to employee exposure are in compliance.
10. The Painesville Uniroyal facility in 38 years of manufacturing operations has never had health-related problems that have been identified with employee exposure in the workplace.

URL-P 3356

CONFIDENTIAL DOCUMENT
PRODUCED PURSUANT TO
PROTECTIVE ORDER

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

TO: ☒ B. R. Leach

February 22, 1974

FROM: C. H. Kim

cc: REH WMI RJD

SUBJECT: NIOSH Visits

During the MCA meeting last Wednesday, February 20, 1974, Mr. R. S. Brookman, Technical Director of Firestone Chemical Plant in Pottstown, Pennsylvania, has made an announcement that they were notified by NIOSH (Mr. J. Jones, 2-11-74) of their intention to visit the Pottstown plant. They have asked how much time Firestone would need to prepare for the visit. NIOSH's visit is tentatively scheduled for February 21 and 22, 1974 upon mutual agreement. The NIOSH visiting team will consist of two medical doctors, two epidemiologists, and two industrial hygienists.

NIOSH requests Firestone to be prepared to present the following information:

1. A complete list of chemicals used in connection with the manufacture of PVC from year one.
2. A complete current chemical list detailing monthly usage.
3. Flow sheets in schematic form.
4. Medical records of all employees.
5. VCM measurement data, if available.
6. Walk-thru inspection.
7. NIOSH intends to take photographs of the operation but they will leave the negatives with the Company for ~~edition~~ *editing*.

I made arrangements with Mr. Brookman so that I may make telephone contact with him in regard to NIOSH's visit on February 25, 1974.


C. H. Kim

CHK:hew

INTERCOMPANY CORRESPONDENCE

UNIRO003357

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

February 19, 1974

cc: JEC - Nauq.

TO: Dr. W. D. Harris
Oxford

FROM: B. R. Leach
Painesville

SUBJECT: Chemicals Used in PVC Manufacture

The president of our URW Local, Ken Coss, received a telephone call from Louis Beliczky requesting a list of all chemicals used in the Painesville plant in the manufacture of PVC.

We have prepared the attached list by taking the list of all the chemicals we use and deleting those specifically limited to the manufacture of Paracril. This produces a list of chemicals used in the Boiler House, water treatment and waste treatment as well as in the PVC manufacturing buildings.

I concur that it is best to have this information conveyed from your office to the URW International. When you have provided the information to them I want to give a copy of your letter to our local president to satisfy him that we have done the job completely.


B. R. Leach

BRL:nak
cc: RJD CHK
Att:

INTERCOMPANY CORRESPONDENCE

UNIROYAL003358

VCM CONCENTRATION
24 HOUR SAMPLES-MIRAN RESULTS

<u>DATE</u>	<u>BLDG.</u>	<u>LOCATION</u>	<u>RANGE, ppm</u>	<u>AVE., ppm</u>
2/12/74	117	2nd Floor @ Charge Station		52
2/13/74	117	1st Floor @ Stripper H		36
2/14/74	117	1st Floor @ #7 Compressor		528
2/15/74	117	2nd Floor @ Exhaust Fan		148
2/18/74	107	2nd Floor @ Weighing Bench		52
2/19/74	107	2nd Floor Between A&B Strippers		25
2/20/74	107	Air Above Manhole During Jetting	32-230	90 (40 min.)
2/20/74	107	Poly Cleaner Entered @ 26 ppm	26	
2/20/74	107	Poly Cleanout Matl. in Drum (2/3 full)	6"abv. drum	40
2/20/74	107	" " " " " "	6"into drum	75
2/20/74	107	1st Floor Catwalk Under #17	2-1100	120 (22 hrs.)
2/21/74	107	2nd Floor Exhaust Fan	26-1000	120 (4 hrs.)
2/21/74	107	With Poly Cleaner in #15		1630 (chromatogp)
2/22/74	414	2nd Floor Exhaust Fan	20-1050	88
2/23/74	414	2nd Floor 2' East of Poly #11	0-1640	88
2/24/74	414	1st Floor Exhaust Fan	3-1600	100
2/25/74	414	1st Floor Between Strainers	0-1600	160
2/26/74	415	Bagger Station	20-160	26
2/27/74	117	Poly 10 Jetting	70-745	265 (30 min.)
2/27/74	117	Poly 6 Jetting	50-1095	260 (24 min.)
2/27/74	117	Poly 6 Jetting-next shift	160-1600+	380 (17 min.)
2/27/74	117	SE Exhaust Fan-2nd Floor	80-530	160 (16 hrs.)
2/27/74	108	Centrifuge Catwalk	0-950	65
3/1/74	108	Swenson Bagger		30 (30 min.)
3/1/74	108	Bowen #1		15 (6 hrs.)
3/1/74	107	Poly 22 with Poly cleaner	120-580	185 (75 min.)
3/1/74	107	Poly 22 with increased air		25
3/2/74	108	Catwalk @ Bowen #2 Derrick	35-800+	250
3/4/74	414	1st Floor Exhaust Fan	8-360	60 (2.5 hrs.)
3/4/74	414	Poly 5 Jetting	100-320	160 (8 min.)
3/4/74	414	Poly Cleaner in #5	10-25	15 (23 min.)
3/5/74	414	1st Floor Exhaust Fan	10-380	40 (4 hrs.)
3/5/74	414	Jetting #4		1600+ (7 min.)
3/5/74	108	Feed Chute to Wms. Mills	5-100	25 (11 hrs.)
3/6/74	117	Between Compressors 7&8	160-550	270
3/6/74	107	2nd Floor Exhaust Fan	50-1040	120 (19 hrs.)
3/7/74	107	Poly Cleaner in #16	50-150	80 (70 min.)
3/7/74	107	2nd Floor Exhaust Fan	50-160	70 (2 hrs.)
3/8/74	108	Locker Room	0	0 (3.5 hrs.)
3/8/74	117	2nd Floor Exhaust Fan	25-800	90 (18 hrs.)
3/9/74	100	Break Room	4-14	8
3/10/74	108	Locker Room	2-190	5
3/11/74	108	Sock Change-Bowen #2	15-26	20 (15 min.)
3/11/74	108	Pilot Plant	0-700	14 (10 hrs.)



B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

5100 OAK TREE BOULEVARD • CLEVELAND, OHIO 44131 • PHONE 216-524-0200

INTERNATIONAL DEPARTMENT

VIA AIR MAIL

February 19, 1974

Mr. C. H. Kim
Uniroyal Chemical
Painesville, Ohio 44077

Dear Mr. Kim:

This letter and the enclosed brochure are for the purpose of introducing you to the B.F. Goodrich Chemical Company Hydraulic Reactor Cleaning System.

The system has been developed and perfected by B.F. Goodrich over the last several years, and many systems are now in operation in various Goodrich Chemical and licensee PVC plants.

The hydraulic reactor cleaner has been used on large and small reactors, including glass-lined and stainless steel, with very good cleaning obtained on all vessels during a total cleaning cycle of one-half hour. A small amount of polymer buildup occurs in difficult to clean spots, after a considerable number of charges. This buildup may be removed physically in a very short time, this being the only time it is necessary for personnel to enter the reactor.

B.F. Goodrich Chemical Company is willing to license this reactor cleaning system. The hydraulic reactor cleaner, or the complete system if desired, would be available from a reputable engineering firm which has worked closely with Goodrich in the development of this device.

If you have an interest in the system, we would be very happy to demonstrate it at our Louisville, Kentucky plant upon execution of a simple secrecy agreement.

Should there be any questions regarding this system, we would be pleased to meet with you at your convenience, to discuss licensing and operation of this hydraulic reactor cleaning system.

Sincerely,

Arthur L. Hastings
Arthur L. Hastings

ALH:rh
Enclosure

CABLE ADDRESS GOODCHEM 10PC. --- CODE ABC SIXTH EDITION --- TELEX NO. 88-0427

UNIRO003360

B. F. GOODRICH CHEMICAL COMPANY

HYDRAULIC REACTOR CLEANING SYSTEM

Economic Data

March 1971

BFGoodrich

B. F. Goodrich Chemical Company

DIVISION OF THE B. F. GOODRICH COMPANY

UNIRO003361

TABLE OF CONTENTS

- I. DESCRIPTION OF SYSTEM
- II. OPERATING AND SAFETY ADVANTAGES
- III. ECONOMIC ADVANTAGE
- IV. LICENSING SITUATION

I. DESCRIPTION OF SYSTEM

The B.F. Goodrich Chemical Company has developed a unique system for cleaning PVC reactors. Actual cleaning of the reactor is accomplished with high-pressure water in a fraction of the time required for cleaning reactors by hand.

Operation of the system is quite simple, and is operated by one man.

Very little training is required to operate the equipment, as cleaning is essentially automatic. The hydraulic cleaning unit is supplied with a special cart so that it can be moved from reactor to reactor. Approximately five minutes are required to mount the hydraulic reactor cleaner unit on the reactor and make the necessary hose connections. Cleaning is then accomplished in 15 to 20 minutes. The reactor manway is completely sealed by the unit so the personnel on the operating floor are not exposed to high pressure water and resin particles. After cleaning, the unit is removed, which requires about five minutes, for a total cleaning cycle of approximately 30 minutes. Use of this system results in noticeably cleaner reactor surfaces than are normally obtained by manual cleaning.

II. OPERATING AND SAFETY ADVANTAGES

In addition to the economic advantage of using the B.F. Goodrich Chemical Company hydraulic reactor cleaner system, there are several additional important benefits to be gained. These are as follows:

1. Normally personnel do not enter the reactor, and therefore they are not exposed to possible suffocation by VCl fumes, or injuries caused by someone mistakenly starting the reactor agitator.

II. OPERATING AND SAFETY ADVANTAGES

2. The hydraulic reactor cleaner operates pneumatically, and uses water as the cleaning agent. Therefore, the danger of fire is not present as it is with solvent cleaning of reactors, or mechanical cleaning with inherent spark producing potential.
3. The reactor is significantly cleaner using the hydraulic reactor cleaner as compared to hand cleaning methods. This results in reduced product contamination, and better heat transfer through the reactor walls.
4. The chipped glass, nicks, and gouges normally associated with mechanical cleaning of reactors is eliminated when using the hydraulic cleaning system.

III. ECONOMIC ADVANTAGE

The economic advantage gained from using this system is derived from two parts. First, the actual cleaning cost per pound of resin is substantially reduced. Second, reactor productivity is increased.

Example:

Following is an example of possible savings for a hypothetical 100,000,000 pound per year PVC plant. The cost of the hydraulic reactor cleaning system shown can be higher or lower depending on the options chosen, but it is felt that the figures shown provide for a more than adequate system.

Assumptions

1. 25 reactors producing 6,000 pounds PVC per charge.
2. Onstream time, 333 days per year.
3. Total cycle time using H.R.C. system, 12 hours.

III. ECONOMIC ADVANTAGE (continued)

With Manual Cleaning

3. Operating Cost

a. Manpower (3 men/shift at \$10,000 \$120,000
per man per year)

b. Utilities, tools, and safety equipment 5,000

TOTAL COST \$125,000 per year

Reactor cleaning cost per pound of PVC $\frac{\$125,000}{92,000,000 \text{ lb.}}$ = .136¢/lb.

Productivity gain using hydraulic 100,000,000 lbs. PVC

Reactor Cleaning System 92,000,000

8,000,000 lbs. PVC/yr.

Assuming net profit of .5¢ per pound PVC

(\$.005) (8,000,000 lb. PVC) = \$40,000 per year

\$125,000 cost for manual cleaning

61,330 cost for H.R.C. System

\$ 73,670 Saving per year

\$73,670 Savings using H.R.C.

40,000 Savings due to increased productivity

\$113,670 total savings per year

IV. LICENSING SITUATION

B.F. Goodrich Chemical Company is willing to license this reactor cleaning technique for a nominal lump sum royalty. Licensee will be given all the information in the possession of BFG and will also be placed in contact with a machine design company who can work with Licensee to design units for specific vessels.

Upon signing a simple secrecy agreement, prospective Licensee will be allowed to see this unit in operation at the Louisville, Kentucky plant of BFG Chemical.

One patent has already been filed in the United States, and it is expected that additional patents will be filed in the future. Foreign filings based on the United States application will be extensive.

Mr. L. M. Puckett, Manager of Licensing, or Mr. A. L. Hastings, Licensing Engineer, will be happy to discuss this reactor cleaning technique at your convenience.

III. ECONOMIC ADVANTAGE (continued)

With Hydraulic Reactor Cleaner System

1. Capital Investment

Complete system including pump, controls,
electrical, installed piping, and two
hydraulic reactor cleaning units \$ 83,000

2. Operating Costs

a. Maintenance and utilities \$11,700/year

b. Manpower (1 man per shift at \$10,000
per man per year) 40,000/year

\$51,700/year

3. Ten year depreciation of equipment and \$ 9,630/year

8% compound interest per year

TOTAL COST \$61,330/year

Reactor Cleaning Cost per pound of PVC $\frac{\$ 61,330}{100,000,000 \text{ lb.}} = .0614/\text{lb.}$

With Manual Cleaning

1. Total cleaning time, 1.5 hours per charge.

2. Charges per day $\frac{(24 \text{ hr.}) (25 \text{ reactors})}{(13 \text{ hr./chg.})} = 46$

$\frac{(46 \text{ chgs.}) (1.5 \text{ hours cleaning time})}{(6 \text{ hrs./man day})} = 8.6 \text{ men/day} = 3 \text{ men/shift}$

$(46 \text{ chgs./day}) (333 \text{ days}) (6,000 \text{ lbs./chg.}) = 92,000,000 \text{ lbs. PVC/yr.}$

CONFIDENTIAL

TRIP REPORT

B. F. Goodrich Company
Niagara Falls,
New York

Attended: UNIROVAL Personnel

W. M. Tliff
P. E. Phillips
G. J. Higgins

B. F. Goodrich Personnel

Messrs. Lennox
Aquina
Nolan
Hastings

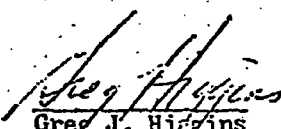
A visit was made January 14, 1971 to the B. F. Goodrich Plant in Niagara Falls, New York to witness a demonstration of a high-pressure water cleaning device that B. F. Goodrich is interested in licensing to other PVC manufacturers.

The device is water and air driven and is similar to many of the available whirling nozzle spray devices except that it has a rather sophisticated programming system allowing it to clean from four different positions.

The reactor used for the demonstration was a 1,100 gallon stainless steel vessel that was very lightly fouled. In a matter of a half an hour, the machine was installed, worked through its program and was removed. The vessel was completely cleaned except for a knot or two on the agitator shaft coupling. The spray machine was handled by one man using a four-wheeled dolly and chainfall. This was, of course, a small piece of equipment in comparison with that which we would need at Painesville.

A device of this sort would be useless to us in Area I where all of the vessels have heat exchangers, but might prove to be highly satisfactory in S-D, and for Area I Strippers. The economies are being prepared and will be reported in the near future.

For maximum effectiveness, it would appear at present that two machines and a 5,000 pound, 60 GPM pump would be required. A firm in Cleveland, Polytechniques, Inc., has built these units for Goodrich and is recommended as a reliable source of manufacture.


Greg J. Higgins

GJH:hew

1-18-71

Copies: FLM REH WMI PEP

UNIRO003368

December 23, 1970

Mr. A. L. Hastings
B. F. Goodrich Chemical Company
3135 Euclid Avenue
Cleveland, Ohio 44115

Dear Mr. Hastings:

Enclosed is a fully executed copy of the secrecy agreement concerning your hydraulic reactor cleaning system.

I am interested in meeting with you at an early date for further discussions, and when possible, a demonstration of the system in actual operation.

Sincerely,

UNIROYAL, INC.

P. E. Phillips
P. E. Phillips,
Methods Engineering
Supervisor

PEP/jem

Attach.

bcc: FIM WMI REH
R. Mankowich - Mang.

UNIROYAL003369



B.F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

3135 EUCLID AVENUE • CLEVELAND, OHIO 44115 • PHONE 216-881-8200

R. P. KENNEY
VICE PRESIDENT-INTERNATIONAL

September 30, 1970

Uniroyal Chemical
Division of Uniroyal, Inc.
Painesville, Ohio 44077

SECRECY AGREEMENT
RE: HRC

Gentlemen:

It is understood that representatives of your company (hereinafter UC) desire to receive further information concerning high pressure hydraulic devices and systems for reactor cleaning (hereinafter HRC) developed by our company (hereinafter BFG) to determine possible interest in licensing the same.

To this end, BFG will permit its HRC operations at its Niagara Falls, New York plant to be observed by representatives of UC and will also authorize representatives of POLYTECHNIQUES, INC. of 17100 Miles Avenue, Cleveland, Ohio (hereinafter PI) which has performed services relative to HRC for BFG to discuss the possibility of PI performing services and supplying HRC devices to UC, provided that UC agrees to the following conditions:

- (1) It is understood that the engineering details and drawings of HRC devices will not be revealed or disclosed pursuant to this letter and that UC by virtue of this letter will have no license express or implied under any patent rights of BFG including certain pending U.S. patent applications directed to HRC devices and their method of operation.
- (2) UC agrees that information revealed to or acquired by it as a result of the visit to the aforesaid Niagara Falls Plant, or as a result of discussions with representatives of BFG and/or PI, will be maintained in confidence and not revealed to any third party and will be used by UC solely for the purpose of determining whether UC wishes to acquire a license relative to HRC from BFG.

UNIRO003370

September 30, 1970

Page 2

- (3) The obligation of UC as set forth in paragraph (2) shall not apply to any item of information which (a) is published or available to the public on the date hereof or hereafter becomes published or available to the public through no fault of UC or (b) can be shown to have been in the possession of UC prior to acquisition from BFG or PI, or (c) is acquired by UC without binder of secrecy from a third party who has no obligation of secrecy to BFG with respect thereto, it being understood that PI is not such a third party.
- (4) The obligations of UC as set forth in Paragraph (2) shall terminate three (3) years from the date hereof.

If the above conditions are satisfactory to UC, please so signify by countersigning the enclosed copy of this letter and returning it to us.

Very truly yours,

B.F.GOODRICH CHEMICAL COMPANY

R. P. Kenney
R. P. Kenney - Vice President
International

js

COUNTERSIGNED:

UNIROYAL CHEMICAL

L. M. White
VICE PRESIDENT (Title)

UNIRO003371

copy to RJD
3/22/74

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

February 15, 1974

cc: JEC - Naug.
WDH - OxfordTO: G. A. Anderson
NaugatuckFROM: B. R. Leach
PainesvilleSUBJECT: Painesville Application of NIOSH
VC/PVC Recommendations

As you know, we held a meeting on Wednesday to review with most interested staff people the NIOSH recommendations of 1-31-74. Attached are the Minutes of that meeting as put together by C. J. Urbanski.

Yesterday, Thursday, we had a review session with the union committee to go over the highlights of this list. They were given a copy of the NIOSH recommendations and we went through those recommendations, item by item, to tell them the action we planned to take. In some cases this was an immediate action and in others a study of alternatives to determine what would be done in the near future. The primary principles involved were that use of individual protective equipment and operating procedures presently provided, as well as individual personal hygiene, would be required of everyone. Certain process changes, such as no longer having the S. D. manhole open during batch dumping, will be made. This presentation was received calmly. The concern was expressed that process and equipment changes be made to reduce exposure and that we don't try to do it all by changing established operating procedures.

A similar presentation was made to PVC Production and Maintenance foremen later on Thursday.

A follow up staff review is scheduled for 2-25-74 to check progress on the assignments of 2-13 and to consider any new information available from MCA or NIOSH.

BRL:nak
B. R. LeachBRL:nak
cc: JRD WMI

UNIROYAL003372

ACTION TO BE TAKEN

ITEM		BY
X I-A-1	Good Housekeeping procedures will have to be maintained.	All
X I-A-2	<u>All dried</u> PVC containers to be kept closed.	All
I-A-03	Drums used for poly cleanout must have lids.	ABF/et al
	Poly cleanout to be removed from inside buildings	ABF/et al
	each shift, and dumped into Dumpsters (NOTE: Involves	RTS
	change in job duties in Area I.) Collection of Poly	
	cleanout in drums for sale to be discontinued. Sale of	
	Poly cleanout in dumpster containers to be investigated.	GEB
	Present poly cleanout stored in drums in Bldg. 402 to	GMB
	be removed from inside building.	
I-B	{ Determination of Yields and Efficiencies to be increased	CHK
	from once/month to once/week.	
	Will need to concentrate on identifying sources and mag-	CHK
	nitude of <u>unaccountable losses</u> . <i>Monitoring</i>	
I-C	<u>SD</u> - Active program underway to clean off ledges, tops	GMB
	of tanks, equipment, etc., utilizing built-in vacuum	
	cleaning system. Need to finalize and maintain.	
	<u>Bldg. 108</u> - Major cleanup to be contracted out to capable	ABF/CES
	<u>vacuum cleaning outfit</u> after which CES to establish and	<i>Timing?</i>
	and institute program to maintain.	
I-D	{ Eating in Bldg. 108 locker room to be discontinued,	RTS/CES
	and Bldg. 100 lunch room to be used instead. Consumption	
	of food and drink in operating areas to be discontinued	RTS/et al

ITEM	ACTION TO BE TAKEN	BY
I-D (cont'd)		
(W)	Employees not be allowed to wear coveralls into lunch rooms. Lab eating places to be defined.	RTS/et al CEW
II-A	Coveralls are to be made available on a more frequent basis; this will necessitate an increased supply and more frequent dispensing. The increased cost for additional coverall requirements to be determined and compared to an on-site coverall laundering setup. The cost and availability of safe disposable-type clothing is to be ascertained. Clothes vacuum stations located at strategic locations to be investigated.	JHC JHC NCW/JHC REH
II-B	Protective gloves are available and will be required ^{recommended} to be worn for handling VC/PVC. Vessel cleaners <u>must</u> wear impervious type gloves. ^{the VC land} (W) Baggers must wear gloves - types to be resolved to allow for required agility. Safety shoes will be required to be worn <u>on and for</u> <u>job only</u> - not to be taken or worn home.	All ABF CES/GMB RTS
II-C	Types of "hair coverings" available to keep PVC out of hair will be determined.	NCW
II-D	Vessel cleaners are to continue using coveralls while feasibility, costs, and safety aspects of other types of apparel are investigated.	NCW

<u>ITEM</u>	<u>ACTION TO BE TAKEN</u>	<u>BY</u>
II-D (cont'd)	B. F. Goodrich to be contacted on how they are implementing this requirement and as to what is nature of "slicker type" suits. Possible counter-effects of wearing impervious-type suits needs to be investigated.	WMI NCW
III	Requirements for taking showers and practice of good personal hygiene deemed to be one of most important aspects of program. Vessel cleaners to be required to take showers during allotted washup time. Other personnel to be encouraged to take showers on own time while Industrial Relations investigate ways to implement program without jeopardizing need for continuous operations.	ABF RTS
IV-A-1 thru 4	In-Plant environmental monitoring programs are actively underway by Technical Department. A Wilks-Miran continuous Infra-red analyzer is currently being used to monitor VC concentrations over a 24-hour period in each of three fixed positions in Bldg. 117. Same procedure will be used to monitor Bldgs. 107, 108, 111, 115, and the Pilot Plant in Bldg. 117. Two portable Bacharach TLV "sniffers" are on order with 60 days promised deliveries. Attempts are being made to obtain a unit a loan basis as soon as possible.	CHK/CEW CHK/CEW

UNIROYAL CHEMICAL

Division of UNIROYAL, Inc.

TO: C. H. Kim
FROM: D. E. Rhinehart

DATE: January 22, 1974

cc: BRI GEB CJU

SUBJECT: Improved Foam Knockout Tanks for the S.D. PVC Plant

The knockout tanks as originally installed are too small, resulting in frequent plugging of the recovery system. Poorer recovery of the unreacted vinyl chloride is the result as well as lost time and extra expense for filters that are necessary to keep polymer out of the Nash recovery system.

In addition, for the more foamy types such as Marvinol 19 and 24, one of the 12 polys (8.3%) must be used as a foam knockout vessel. For the past year (1973) 2285 poly hours (2.2%) was lost using a poly for stripping. At the same time, finishing lost 5.1% production time for lack of slurry.

Larger 6' diameter foam traps equipped with water sprays and liquid level control such as is being used successfully for Building 107 debottlenecked plastisol and were to be used for the plastisol expansion, should be provided (see Fig. 1).

Using 1% increase in poly usage of a possible 2.2% used as a stripper and for a 1973 production of 63.65 million packaged pounds, the installation of an improved foam control system would increase the production by 630,000 pounds per year.

The installed equipment cost is estimated at \$30,000. (Table 2) The increment increase in income would be \$37,970. per year or 127% return before taxes (Table 1). The equipment cost is firm to June 1974 with 30-32 week delivery (DSB).

Note: With increased selling price effective February 15, and escalating costs, return would be approximately 136% (see Table 1).

In addition to increasing production, other benefits would include: (1) Improve yield by returning carry-over material to A-grade, (2) reduced filter costs, (3) reduce pluggage and downtime for maintenance on the recovery system, and (4) insure better vacuum to improve VCM recovery stripping.



DER/ard 2-22-74
Attachments: 6 Pages

FREQUENTLY CORRESPONDENCE

UNIRO003386

Copies To:

BRI WMI
CHK RWK
RFH MCJ
JIS CBW

Route:

Copy for 12-12-72

Follow-up

File

Telephone Call Report

SUBJECT: Air Sampling Within Plant Working Areas

From: C. B. Westerhoff

To: Dr. W. H. Harris

Day Monday

Date November 27, 1972

I advised Dr. Harris that our air sampling program did not include the testing in which he was interested, namely the concentration of vinylchloride monomer in the working areas. He asked what our capability was for testing low concentrations of vinylchloride and Mrs. Stoll provided him with the facts that we can test to 0.1 part per million in a sample of air. Dr. Harris plans to visit Painesville on December 11th and 12th, arriving late on the 11th and possibly staying over until the 13th so that he might examine the operating areas of the Marvinol production facilities and decide where it would be appropriate to sample the air and analyze for vinylchloride monomer. He will oversee the sampling and analysis and discuss with us the possible necessity of a regular program of sampling for this purpose.

UNIRO003387

24
Sms 9-~~73~~-73

BRL

I have asked Bill Russo to give me his recommendation on the Miran gas analyzer because I have heard that it could be a maintenance problem.

There is also a basic question whether we should buy ^① a variable filter instrument for scanning a range of wavelengths and hence able to detect several components in air or ^② one or more fixed filter instruments set for detecting a particular component in the air.

Russo is giving this some priority.

(BRL)

8/18

~~Sub 8-13-73~~
D. E. Staley? July 18, 1973
J. B. B.

cc: BRL CHK RHH CJU GMB SBF
VMI MCJ RJK NCW CBW JDP
File-2

MEMORANDUM

Oxford: WDHarris
LDieringer

Report on Plant Trial
of Miran Gas Analyzer

#6
8/15/73

Mr. Harry Jacobs of the Wilks Scientific Corporation brought a portable infra-red gas analyzer to the Painesville plant on June 28, 1973, for a brief demonstration. The instrument had no self contained power source although this is available. It is not explosion-proof, but can pull vapors through a hose from the area to be tested to the analyzer up to 100 feet away. Mr. L. Dieringer was present for the demonstration.

Sampling was carried out in the Paracril finishing area, process area, and the S.D. process area. At the same time, sampling was carried out using the TLV Sniffer meter. In all cases, readings on both meters rose and fell together. Since neither instrument had been accurately calibrated for the vapors being sampled at that time, no quantitative results were obtained. It appeared that hydrocarbon concentrations in the air were quite low, however.

Air samples taken at the discharge end of the P&S dryer showed negligible meter readings. The air in the building was also quite clear at this time. Paracril 3300 (alum floc) was being produced. Small readings at the wavelength where acrylonitrile absorbs were obtained at the second dewatering screen, but the air sample had to be taken within 12 inches of the crumb bed to get a reading.

Air samples in the latex blend tanks gave significant levels of acrylonitrile, but the air around the operating area was quite clean in both the finishing and process areas of Paracril.

The process area in S.D. indicated some vinyl chloride content in the air. Several reactors were open.

In order to obtain a more complete and quantitative idea of the air composition throughout the factory, the Miran gas analyzer should be rented for about three months with a recorder and a calibration system. This would cost slightly over \$500.00 per month, 75% of which would apply against purchase price. Calibrating and interpreting data could take 25% to 50% of a man's time in order to get maximum effectiveness from this instrument.

After Painesville has characterized its major problem areas, it is possible that Dr. Harris might want to consider purchase of the instrument for use in other plants.


C. B. Westerhoff

CBW/jem

UNIRO003389

Em 6-22-73 7-2-73

UNIROYAL, Inc.

~~DOA~~
Now what?
BRL 8/1
6/4/73
4/1
7/2/73

TO: C. B. Westerhof
Painesville Plant

FROM: W. D. Harris, Ph. D.

DATE: May 29, 1973

RECEIVED BY BRL		
JUN - 4 73 Oxford E-G-1		
(Location)		
ROUTE		
ORDER	TO	DATE RELEASED
	LEB	
	JHC	
1	CHK	6/1
	REH	
	WMI	
	PAM	
	DLM	
	LPM	
2	HRL	XX
	F	

MAY 30 1973	
GAA	
LAK	
PER	
BSR	
AS	
FILE	

What is your assessment of this?

Enclosed is the information on the MIRAN Infra-red Analyzer which I mentioned on the phone. My understanding is that data used in this instrument is acceptable to OSHA. Larry Dieringer and I saw it at the Boston AIHA meeting last week. We think that it looks like a very useful instrument. You can use it for scanning to find where the highest concentration is located. In this application you would get a continuous reading on the dial. On the other hand, you could set it up with a chart at a fixed location and measure the fluctuation with time.

I think there should be at least one of these instruments in the company and we will be discussing this with Mr. Dudrow to see whether we could get one here. If you should decide to get one at Painesville, we would like to be kept in close contact, both to get acquainted with the instrument and to get firsthand knowledge of the concentrations.

W. D. Harris

W. D. Harris, Ph. D.
Corporate Industrial Toxicologist

WDH:

Enclosure

cc: G. A. Anderson - EMIC
D. E. Dudrow - Oxford

We have discussed the equipment w/ supplier as well as Diamond - Samrock Environmental Systems who uses the equipment. Diamond - S likes the equipment but expects (\$4,000). We are evaluating a \$400 equipment now. We will make decision soon as to what equipment we would need to collect info. for OSHA.

INTERCOMPANY CORRESPONDENCE

COO U → 7/1

UNIRO003391